Product Information Sheet for NR-56475

SARS-Related Coronavirus 2, Isolate hCoV-19/USA/HI-CDC-4359259-001/2021 (Lineage B.1.1.529; Omicron Variant)

Catalog No. NR-56475

For research use only. Not for use in humans.

Contributor:
Centers for Disease Control and Prevention, Atlanta, Georgia, USA

Manufacturer:
BEI Resources

Product Description:
Virus Classification: *Coronaviridae*, *Betacoronavirus*
Species: Severe acute respiratory syndrome-related coronavirus 2
Strain/Isolate: hCoV-19/USA/HI-CDC-4359259-001/2021
Original Source: Severe acute respiratory syndrome-related coronavirus 2 (SARS-CoV-2), isolate hCoV-19/USA/HI-CDC-4359259-001/2021 was collected on November 27, 2021 in Hawaii, USA.[1]

Note: Genome sequence information is provided on the Certificate of Analysis and includes an analysis of all sequence variations observed for each lot.

Comments: Under the nomenclature system introduced by GISAID (Global Initiative on Sharing All Influenza Data), SARS-CoV-2, isolate hCoV-19/USA/HI-CDC-4359259-001/2021 is assigned lineage B.1.1.529 (Pango v.3.1.17 2022-01-05), and GISIAD clade GRA using Phylogenetic Assignment of Named Global Outbreak lineages (PANGO) tool.[1,2,3] The complete genome of the clinical isolate of SARS-CoV-2, hCoV-19/USA/HI-CDC-4359259-001/2021 has been sequenced (GISAID: EPI_ISL_8690072).[1,2] The following mutations are present in EPI_ISL_8690072 after two passages in Vero cells: Spike A67V, Spike D614G, Spike D796Y, Spike E484A, Spike G142D, Spike G339D, Spike G446S, Spike G496S, Spike H69del, Spike H655Y, Spike ins214EPE, Spike L212I, Spike L981F, Spike N211del, Spike N440K, Spike N501Y, Spike N679K, Spike N764K, Spike N856K, Spike N969K, Spike P681H, Spike Q493R, Spike Q498R, Spike Q954H, Spike R346K, Spike S371L, Spike S373P, Spike S375F, Spike S477N, Spike T95I, Spike T478K, Spike T547K, Spike V70del, Spike V143del, Spike Y144del, Spike Y145del, E (Envelope) T9I, M (Membrane) A63T, M D3G, M Q19E, N (Nucleocapsid) E31del, N G204R, N P13L, N R32del, N R203K, N S33del, NSP3 (Non-structural protein 3) A1892T, NSP3 K38R, NSP3 L1266I, NSP3 S1265del, NSP4 (Non-structural protein 4) T492I, NSP5 (Non-structural protein 5) P132H, NSP6 (Non-structural protein 6) G107del, NSP6 I189V, NSP6 L105del, NSP6 S106del, NSP12 (Non-structural protein 12) P323L, NSP14 (Non-structural protein 14) I42V.[1,2] It was labelled as an Omicron variant by the World Health Organization (WHO).[1,4]

Note: Two additional mutations, Spike K417N and Spike Y505H, were identified during sequence analysis, but are not annotated on the GISAID website.

In December 2019, an outbreak of a respiratory illness (COVID-19) began in Wuhan, Hubei Province, China. The outbreak is associated with a seafood market and although environmental samples from the market are positive for the novel coronavirus, an association with a particular animal has not been determined.[5] SARS-CoV-2 has been isolated from patients from several countries and the sequences of some of these isolates have been deposited with GISAID.

Material Provided:
Each vial contains approximately 0.1 mL of spin-clarified cell lysate and supernatant from *Homo sapiens* lung adenocarcinoma epithelial cells (Calu-3) infected with SARS-CoV-2, isolate hCoV-19/USA/HI-CDC-4359259-001/2021.

Note: If homogeneity is required for your intended use, please purify prior to initiating work.

Packaging/Storage:
NR-56475 was packaged aseptically in screw-capped plastic cryovials. The product is provided frozen and should be stored at -60°C or colder immediately upon arrival. For long-term storage, the vapor phase of a liquid nitrogen freezer is recommended. Freeze-thaw cycles should be avoided.

Growth Conditions:
Host: *Homo sapiens* lung adenocarcinoma epithelial cells (Calu-3; ATCC® HTB-55™)
Growth Medium: Eagle's Minimum Essential Medium containing Earle's Balanced Salt Solution, non-essential amino acids, 2 mM L-glutamine, 1 mM sodium pyruvate and 1500 milligrams per liter of sodium bicarbonate supplemented with 2% fetal bovine serum, or equivalent
Infection: Cells should be 70% to 90% confluent
Incubation: 2 to 4 days at 37°C and 5% CO_2
Cytopathic Effect: Cell rounding and sloughing

Citation:
Acknowledgment for publications should read "The following reagent was deposited by the Centers for Disease Control and Prevention and obtained through BEI Resources, NIAID, NIH: SARS-Related Coronavirus 2, Isolate hCoV-19/USA/HI-CDC-4359259-001/2021 (Lineage B.1.1.529; Omicron Variant), NR-56475, contributed by Centers for Disease Control."

Biosafety Level: 3
Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the following publication: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, and National Institutes of Health. Biosafety in Microbiological and Biomedical Laboratories. 6th ed. Washington, DC: U.S. Government Printing Office, 2020; see www.cdc.gov/biosafety/publications/bmbl5/index.htm.

BEI Resources
www.beiresources.org
E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898

Disclaimers:

You are authorized to use this product for research use only. This product is not intended for human use.

Use of this product is subject to the terms and conditions of the Emergency Use Simple Letter Agreement (EUSLA) and the BEI Resources Material Transfer Agreement (MTA). The MTA is available on our Web site at www.beiresources.org.

While BEI Resources uses reasonable efforts to include accurate and up-to-date information on this product sheet, neither ATCC® nor the U.S. Government makes any warranties or representations as to its accuracy. Citations from scientific literature and patents are provided for informational purposes only. Neither ATCC® nor the U.S. Government warrants that such information has been confirmed to be accurate.

This product is sent with the condition that you are responsible for its safe storage, handling, use and disposal. ATCC® and the U.S. Government are not liable for any damages or injuries arising from receipt and/or use of this product. While reasonable effort is made to ensure authenticity and reliability of materials on deposit, the U.S. Government, ATCC®, their suppliers and contributors to BEI Resources are not liable for damages arising from the misidentification or misrepresentation of products.

Use Restrictions:

SARS-CoV-2 materials provided by BEI Resources under the EUSLA are made available for any legitimate purpose, including commercial purposes as long as they are to rapidly prevent, detect, prepare for, and respond to, the spread or transmission of the 2019 SARS-CoV-2. Any further transfer of the original material or any unmodified progeny must be done under the terms of the EUSLA, documented as described above and you must notify BEI Resources of each subsequent transfer. Any new materials made by you that are not the original material or unmodified progeny are excluded from this requirement and you are free to share and commercialize those as your materials.

References:

1. GISAID
2. Rambaut, A., et al. “A Dynamic Nomenclature Proposal for SARS-CoV-2 Lineages to Assist Genomic Epidemiology.” Nat. Microbiol. 5 (2020): 1403-1407. PubMed: 32669681.
3. Mercatelli, D. and F. M. Giorgi. “Geographic and Genomic Distribution of SARS-CoV-2 Mutations.” Front. Microbiol. (2020): doi.org/10.3389/fmicb.2020.01800. PubMed: 32793182.
4. WHO
5. Gralinski, L. E. and V. D. Menachery. “Return of the Coronavirus: 2019-nCoV.” Viruses 12 (2020): 135. PubMed: 31991541.

Support Provided by NIAID

BEI Resources
www.beiresources.org

E-mail: contact@beiresources.org
Tel: 800-359-7370
Fax: 703-365-2898